



U.S. Department of Transportation
Federal Highway Administration
Office of Planning, Environment and Realty

Office of NATURAL ENVIRONMENT

<http://www.fhwa.dot.gov/environment/>

The Federal Highway Administration's (FHWA) Office of Planning, Environment, and Realty offers research opportunities to improve transportation decision making and promote efficiency while protecting communities and the environment. The Office supports and conducts research that:

- Informs Decisions
- Reduces Environmental Impacts
- Enhances Quality of Life
- Accelerates Project Delivery
- Advances Planning

The following document highlights specific research activities in the Office of Natural Environment. For more information, please visit: http://www.fhwa.dot.gov/hep/hep_research/.

OFFICE OF NATURAL ENVIRONMENT

FHWA's Office of Natural Environment develops and implements programs and activities to minimize the adverse impact of transportation on the natural environment.

Research Focus

The Office conducts comprehensive research to support the development and implementation of programs and activities including the Congestion Mitigation and Air Quality Improvement (CMAQ) program, transportation conformity, air quality analysis and assessment, highway traffic noise, sustainability, and climate change.

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FEATURED RESEARCH ACTIVITIES

Research efforts to support the implementation of the Congestion Mitigation and Air Quality Improvement (CMAQ) Program

These research activities include: updating existing analytical tools to incorporate new emissions estimating procedures, developing CMAQ Cost Effectiveness Tables, and re-developing the CMAQ project database. A recently completed study, "[Air Quality and Congestion Mitigation Measure Outcomes Assessment](#)", examined the outcomes of actions funded under the CMAQ program. The study assessed emission reductions and human health outcomes of surface transportation actions, and the validity of estimation and modeling routines. **Staff Contact:** Cecilia Ho, 202-366-9862 or cecilia.ho@dot.gov.

Developing a Framework for Better Integrating Health into Transportation Decision Making

A multi-disciplinary research effort is underway to develop a means to incorporate public health considerations into the traditional corridor planning steps. Intended to help agencies identify when and how to consider public health in the planning process, the Framework for Better Integrating Health into Transportation Decision Making (the Framework), provides questions to help practitioners identify what to consider, ideas about potential

partners, and data and tools needed to support these decisions. Examples from current practice will highlight real world accomplishments. The Framework can be applied to many public health topics—from safety and air quality to active transportation and health equity concerns. As part of the Framework study, the FHWA in conjunction with the Federal Transit Administration (FTA) recruited five transportation agencies across the country to beta-test the Framework during an active corridor study. The agencies completed the testing and FHWA is incorporating the findings into the Framework. The Office expects to release the Framework early in 2016. Information on this research is available on [FHWA's website](#). **Staff Contact:** Victoria Martinez, 787-771-2524 or Victoria.Martinez@dot.gov.

Improving Noise Regulation Implementation

FHWA is continually exploring ways to improve the implementation of 23 CFR 772. The most recent study examines the “consideration of the viewpoints of the property owners and residents of the benefited receptors” reasonableness factor, singularly and in combination with each of the other feasibility and reasonableness factors, to identify optimal combinations of values most likely to result in a fair assessment of noise abatement. This effort will complement the previous research completed on noise barrier acceptance criteria. **Staff Contact:** Mark Ferroni, 202-366-3233 or Mark.Ferroni@dot.gov.

Alternative Fuels Pooled Fund Initiative

The Oregon Department of Transportation and FHWA initiated a pooled fund study to assist State and local transportation agencies interested in promoting the use of alternative vehicle and fuel technologies at a State, regional, or corridor scale, and to provide the necessary tools, information, and knowledge to do so. The Deployment of Alternative Vehicle and Fuel Technologies initiative will implement a series of workshops throughout the country and develop a web-based “toolkit” for State and local transportation agencies that will facilitate their deployment of alternative fuel vehicle and related technologies. FHWA serves as a technical liaison to the initiative. To date, the States of California, Vermont, New York, Connecticut, Washington, Oregon, Texas, and North Carolina have contributed to the pooled fund. More information can be found at: <http://altfueltoolkit.org/>. **Staff Contact:** Diane Turchetta, 202-493-0158 or Diane.Turchetta@dot.gov.

Energy and Emissions Reduction Policy Analysis Tool (EERPAT)

EERPAT is an integrated modeling system designed specifically to evaluate strategies for reducing surface transportation greenhouse gas (GHG) emissions. It includes models addressing travel demand, the vehicle fleet, fuel consumption, and CO₂ emissions from vehicle operation. By assessing changes in household-level behavior and interactions among strategies, EERPAT assists transportation agencies in evaluating policy scenarios in support of GHG reduction goals and climate action plans. It also forecasts a variety of other outcomes of relevance to the transportation planning process, including vehicle miles traveled, transit and non-motorized travel, travel delay, and gas tax revenue. The model has been pilot-tested in four States and is available for download at: https://www.planning.dot.gov/fhwa_tool/. **Staff Contact:** John Davies, 202-366-6039 or JohnG.Davies@dot.gov.

Post-Hurricane Sandy Vulnerability Assessment and Adaptation Analysis Project

FHWA is collaborating with transportation agencies in Connecticut, New Jersey, and New York to analyze the damage and disruption from Hurricane Sandy and other recent storms, and their impacts on the region's transportation systems. The project is leveraging lessons learned from these events, as well as future climate and sea level rise projections, to develop feasible, cost-effective strategies for mitigating the risks of extreme weather events and climate change. A selection of regionally significant transportation facilities—including roads, bridges, tunnels, and ports—has been chosen by the region's transportation agencies for a more detailed, engineering-based assessment of adaptation options. Results from the engineering assessments will inform a multimodal transportation vulnerability and risk assessment for the region. The results of this research project will provide information to agencies in the tri-state region, as well as nationwide, that are seeking to plan and invest for long-term climate resiliency while addressing today's transportation challenges. **Staff Contact:** Heather Holsinger, 202-366-6263 or Heather.Holsinger@dot.gov.

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